

WHAT IS CLAIMED IS:

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1. A method of preparing a snack product from a cooked cereal dough, comprising the steps of:
- 5 A. providing free cereal grain pieces having a particle size of about 0.5 to 2.5 mm and a moisture content of at least 18%;
- B. cooking and forming the grain pieces into a cooked cereal dough in a cooker extruder <sup>the 1<sup>st</sup> cooking step</sup> to provide <sup>can</sup> at least partially cooked cereal mass or dough having discernible grain bits, <sup>from said free cereal grain pieces</sup> said forming step including adding sufficient amounts of moisture to provide the cooked cereal dough with a moisture content of about
- 10 21 to 35%; &
- 15 C. immediately thereafter, subjecting the cooked cereal dough to a second cooking step at a temperature of about 120 to about 194°C (248 to 380°F) for about 15 to 45 minutes to form an extended time cooked cereal dough having <sup>and</sup> discernible grain bits dispersed therein.
- 20 2. The method of claim 1 additionally comprising the steps of:
- forming the cooked cereal dough ~~in~~ into pellets each weighing about 0.25 to 10g; and
- 25 drying the pellets to a moisture content of about 8% to 14%.
3. The method of claim 2 additionally comprising the steps of: rapidly heating the pellets to provide puffed finished grain based snacks.

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4. The method of claim 1 wherein step A comprises the substeps of:

1) preparing a raw cereal premix comprising  
(at least one) grain ingredient selected from the  
group consisting of wheat, corn (maize), oats, rye,  
triticale and mixtures thereof; and

2) admixing sufficient amounts of water  
and/or hot moisture containing ingredients to  
provide a wetted preblend with (a moisture content of  
at least 18%,) and

(3) steeping the wetted preblend until the  
added moisture is absorbed.)

5. The method of claim 1 wherein the cereal grain  
includes corn (maize).

6. The method of claim 1 wherein in steps B and C are  
practiced to provide the dough with a Specific  
Mechanical Energy ("SME") value of less than 35  
watt-hours/kg of dough.

7. The method of claim 2 wherein (the rapid heating)  
includes deep fat frying to provide fried puffed  
grain based snacks having a fat content of about 15  
to 40% by weight.

8. The method of claim 6 wherein the cooked cereal  
dough includes sufficient amounts of nutritive  
carbohydrate ingredients to provide a total sugar  
content of about 1 to 15% (dry weight).

9. The method of claim 6 wherein the cereal grain has a  
native moisture content of about 10% to 14% prior to  
admixing with the added moisture.

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10 10. The method of claim 6 wherein the dough includes a member selected from the group consisting of sugar(s), salt, minerals, vitamins, flavors, sodium bicarbonate, and mixtures thereof.

Sub A3 5 11. The method of claim 1 wherein the agitation during steeping is intermittent.

12. The method of claim 11 <sup>comprising</sup> extruding the extended time cooked cereal dough into at least one dough rope extrudate.

10 13. The method of claim 12 wherein <sup>sub (2)</sup> the first cooking step of Step B is practiced in a twin screw extruder and <sup>sub (2)</sup> the first cooking step has a duration of about 0.1 to 3 minutes.

14. The method of claim 13 wherein step C is practiced in a cooker having an Archimedes screw operated at about 1-10 rpm for about 15 to 45 minutes.

Sub A4 15. The method of claim 14 additionally comprising the step of tempering while <sup>sub (2)</sup> cooling the extended <sup>time</sup> cooked cereal dough ropes for a duration of about 1 to 5 minutes while cooling from about 93.3-104.5°C (200-220°F) to about 54.4-76.6°C (130-170°F).

16. The method of claim 15 wherein the tempering step has a duration of about 0.1 to five minutes.

Sub A5 17. The method of claim 15 additionally comprising the step of size reducing the cooled and tempered extended <sup>time</sup> cooked cereal dough to form pieces of about 2 to 8 mm.

18. The method of claim 17 additionally comprising the step of sheeting the cooled and tempered extended <sup>time</sup> cooked cereal dough pieces to form a continuous

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cooled and tempered extended <sup>the</sup> cooked cereal dough sheet.

19. The method of claim 18 additionally comprising the step of forming <sup>the</sup> continuous cooled and tempered

5 extended <sup>the</sup> cooked cereal dough sheet into at least one ribbon.

20. The method of claim 19 additionally comprising cutting <sup>the</sup> (the ribbon of two plies) into a plurality of ribbons.

10 21. The method of claim 19 additionally comprising the step of pneumatically conveying the size reduced cooked dough pieces prior to sheeting.

Sub A6 22. The method of claim 14 wherein <sup>the finished snack prod.</sup> (the finished snack) has a fat content of about 25% to 35%.

15 23. The method of claim 22 wherein the grain includes at least 51% corn (maize).

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24. The method of claim 21 wherein <sup>the pellet forming</sup> (the pellet forming step) involves feeding at least one ribbon of two plies of cooked cereal dough into a rotary cutter.

20 25. The method of claim 1 additionally comprising the <sup>the</sup> applying a topical seasoning to the finished puffed snack products.

26. The method of claim 25 wherein ~~in~~ steps B and C are practiced to provide the dough with a Specific Mechanical Energy ("SME") value of about 10 to 25 watt-hours/kg of cooked dough.

25 27. The method of claim 26 wherein <sup>the</sup> (the dough extrusion step) is practiced to form a plurality of cooked dough ropes each having a diameter of about 3 to 25 mm.

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28. The method of claim 13 wherein the rapidly heating includes microwave heating.

29. The method of claim 13 wherein the rapidly heating includes hot air puffing.

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30. The method of claim 13 wherein the rapidly heating includes deep fat frying.

31. The method of claim 1 wherein step B is practiced in a twin screw extruder.

10 32. The method of claim 31 wherein the residence time for step B ranges from about 10 to 30 seconds.

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33. The method of claim 32 wherein (step C of slow cooking) is practiced after step B without intermediate puming.

15 34. The method of claim 32 wherein (step C of slow cooking) is practiced after step B with intermediate puming.

35. The method of claim 34 wherein the intermediate puming is practiced with a gear pump.

20 36. The method of claim 32 wherein (step C of slow cooking) is practiced after step B within less than 30 seconds.

37. The method of claim 19 wherein the ribbon has two plys.

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38. The method of claim 1 additionally comprising the step of:

sheeting the extended <sup>time</sup> cooked cereal dough to form a continuous cooled and tempered extended <sup>time</sup> cooked cereal dough sheet.

30 39. The method of claim 38 wherein the extended <sup>time</sup> cooked cereal dough immediately prior to sheeting has a

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temperature of about 77°C to 87.8°C (171°F to about 190°F).

40. The method of claim 2 wherein the pellets are in the form of cornucopias.

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41. The method of claim 4 additionally comprising the step of applying a topical coating to <sup>red (cl 4)</sup> (the puffed pieces.)

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